

4.3.5.4.5 *Geology and Soils*

This section discusses the environmental impacts to the geologic and soil resource as related to the construction and operation of an evolutionary LWR. An evolutionary LWR, at any of the sites analyzed, would involve some ground-disturbing construction activities (284 ha [700 acres]) for two unit large or small, and 142 ha [350 acres] for one unit large or small) that would affect the soil erosion potential. The key factors affecting soil erosion potential are the amount of land disturbed and climate. Specifically, the relative annual amount of precipitation (rain) is greater at ORR and SRS than at Pantex, Hanford, INEL, and NTS. Combining these key factors together, the relative soil erosion potential for a site can be categorized as slight, moderate, or severe. Implementation of this alternative requires that a greater amount of land be disturbed relative to the other reactor alternatives. Therefore, this alternative has the greater relative impact to the soil erosion potential.

No apparent direct or indirect effects on the geologic resource are anticipated. Neither facility construction and operational activities nor site infrastructure improvements would restrict access to potential geologic resources.

The soil erosion potential from direct (facility construction) and indirect (site infrastructure improvements) impacts associated with construction and operational activities is low for Pantex, Hanford, INEL, and NTS. The soil erosion potential for ORR and SRS during construction and operational activities is moderate due primarily to greater relative annual precipitation. Soil disturbance would occur primarily from ground-disturbing construction activities (foundation preparation) and associated building construction laydown areas that can expose the soil profile and lead to a possible increase in soil erosion as a result of wind and water action. Soil loss would depend on wind velocities (increased wind velocities and durations increase potential soil erosion), the frequency and severity of rain, and the size and location of ground-breaking activities with respect to local drainage and wind patterns.

Operational effects to the soil resource would be minimal, assuming typical landscaping and ground cover improvements were employed. Net soil disturbance during operation would be considerably less than that during construction, because areas previously without ground cover would have some type of improvement (buildings, roads and landscaping). Although erosion from stormwater runoff and wind action could occasionally occur during operation, it is anticipated to be minimal.

[Text deleted.]